In the Claims:

Please amend the claims as follows:

1. (currently amended) A method for determining a position ~~(P_{xyz}(MT))~~ of a signal transmitter, the method ~~(MT)~~ comprising ~~the steps of~~:

receiving a direct sequence spread spectrum signal ~~(S_{MT})~~ from the transmitter ~~(MT)~~ in each of at least three physically separated sensors ~~(100a, 100b, 100c, 100d)~~ whose respective positions are known, the signal ~~(S_{MT})~~ representing a set of symbols,

correlating, in each of the sensors ~~(100a, 100b, 100c, 100d)~~ a representation ~~(S_{BB}, <S_{BB}>)~~ of the received signal ~~(S_{MT})~~ with at least one local spreading sequence ~~(S_{PP}, S_{bin})~~ to determine a respective estimated transmission delay ~~(d)~~ of the received signal ~~(S_{MT})~~, the received direct sequence spread spectrum signal ~~(S_{MT})~~ having a nominal chip period ~~(T_C)~~, the correlating ~~step~~ producing a chip level synchronization at least within an uncertainty region of one half nominal chip period ~~($T_C/2$)~~, and

calculating a distance ~~(D_{MT-100})~~ between the signal transmitter ~~(MT)~~ and each of the at least three sensors ~~(100a, 100b, 100c, 100d)~~ based on the respective estimated transmission delays ~~(d)~~,

wherein the correlating ~~step comprising the~~ further ~~sub-steps of:~~ comprises:

over-sampling the representation ~~(S_{BB})~~ of the received signal ~~(S_{MT})~~ within the uncertainty region to obtain a corresponding over-sampled representation of the received signal ~~(<S_{BB}>)~~, the over-sampling being equivalent to a reduced chip period ~~(T_{C1})~~ which is shorter than the nominal chip period ~~(T_C)~~,

selecting a local spreading sequence ~~(S_{PP})~~ containing poly-phased symbol values which are different from the set of symbols represented by the received signal ~~(S_{MT})~~, the selected local spreading sequence ~~(S_{PP})~~ having a nominal chip period being equivalent to the reduced chip period ~~(T_{C1})~~, and

cross-correlating the over-sampled representation ~~(<S_{BB}>)~~ of the received signal ~~(S_{MT})~~ with the selected local spreading sequence ~~(S_{PP})~~ to obtain an improved uncertainty region which is more limited than one half nominal chip period ~~($T_C/2$)~~.

2. (currently amended) The method ~~A method~~ according to claim 1, wherein prior to said cross-correlating ~~sub-step~~, the correlating ~~step involving~~ further comprises an auto-correlating ~~sub-step~~ wherein the representation ~~(S_{BB})~~ of the received signal ~~(S_{MT})~~ is correlated with a local copy ~~(S_{bin})~~ of the transmitted spreading sequence to provide an uncertainty region of one half nominal chip period ~~($T_C/2$)~~ around an auto-correlation peak ~~(501)~~.

3. (currently amended) The method ~~A method~~ according to claim 1, further comprising ~~the steps of~~:

examining a phase difference function ~~($\Delta\varphi$)~~ which describes a phase difference between neighboring samples in a cross-correlation function resulting from said cross-correlating ~~sub-step~~,

detecting a position ~~(P)~~ in said phase difference function ~~($\Delta\varphi$)~~ where the phase difference between neighboring samples exceeds a predetermined magnitude ~~($\Delta\varphi_{Th}$)~~, and

defining the improved uncertainty region adjacent to samples in the over-sampled representation of the received signal ~~(<S_{BB}>)~~ equivalent to said position ~~(P)~~.

4. (currently amended) The method ~~A method~~ according to claim 1, wherein the improved uncertainty region ~~having~~ has an extension which is equal to one half reduced chip period ~~($T_{C1}/2$)~~.

5. (currently amended) The method ~~A method~~ according to claim 1, wherein the over-sampling, the selecting a local spreading sequence, and the cross-correlating are repeated ~~repeating said further sub-steps~~ with progressively reduced chip periods and uncertainty regions until a desired limitation of the uncertainty region is achieved.

6. (currently amended) The method ~~A method~~ according to claim 5, wherein the reduced chip period ~~(T_{C1})~~ with respect to a first over-sampling ~~representing~~ represents an over-sampling by an integer factor of the transmitted direct sequence spread spectrum signal ~~(S_{MT})~~, said integer factor being larger than one.

7. (currently amended) The method ~~A method~~ according to claim 6, wherein the reduced chip period ~~(T_{Cn})~~ with respect to any subsequent over-sampling after the first over-sampling ~~representing~~ represents an integer factor times a foregoing over-sampling, said integer factor being larger than one.

8. (currently amended) The method ~~A method~~ according to claim 1, wherein the over-sampling ~~involving~~ comprises a linear interpolation between neighboring sampling points.

9. (currently amended) The method ~~A method~~ according to claim 1, wherein the over-sampling ~~involving~~ comprises one or more repetitions of each sampling value.

10. (currently amended) A computer program directly loadable into the internal memory of a computer, comprising:

program code for determining a position ~~(P_{xyz}(MT))~~ of a signal transmitter ~~(MT)~~, the program code comprises sets of instructions for:

receiving a direct sequence spread spectrum signal ~~(S_{MT})~~ from the transmitter ~~(MT)~~ in each of at least three physically separated sensors ~~(100a, 100b. 100c. 100d)~~ whose respective positions are known, the signal ~~(SMT)~~ representing a set of symbols,

correlating, in each of the sensors ~~(100a, 100b, 100c, 100d)~~ a representation ~~(S_{BB}, $<S_{BB}>$)~~ of the received signal ~~(S_{MT})~~ with at least one local spreading sequence ~~(S_{PP}, S_{bin})~~ to determine a respective estimated transmission delay ~~(d)~~ of the received signal ~~(S_{MT})~~, the received direct sequence spread spectrum signal ~~(S_{MT})~~ having a nominal chip period ~~(T_C)~~, the correlating step producing a chip level synchronization at least within an uncertainty region of one half nominal chip period ~~($T_C/2$)~~, and

calculating a distance ~~(D_{MT-100})~~ between the signal transmitter ~~(MT)~~ and each of the at least three sensors ~~(100a, 100b, 100c, 100d)~~ based on the respective estimated transmission delays ~~(d)~~, wherein the correlating ~~step comprising the~~ further comprises: ~~sub-steps of:~~

over-sampling the representation ~~(S_{BB})~~ of the received signal ~~(S_{MT})~~ within the uncertainty region to obtain a corresponding over-sampled representation of the received signal ~~($<S_{BB}>$)~~, the over-sampling being equivalent to a reduced chip period ~~(T_{C1})~~ which is shorter than the nominal chip period ~~(T_C)~~,

selecting a local spreading sequence ~~(S_{PP})~~ containing poly-phased symbol values which are different from the set of symbols represented by the received signal ~~(S_{MT})~~, the selected local spreading sequence ~~(S_{PP})~~ having a nominal chip period being equivalent to the reduced chip period ~~(T_{C1})~~, and

cross-correlating the over-sampled representation ~~($<S_{BB}>$)~~ of the received signal ~~(S_{MT})~~ with the selected local spreading sequence ~~(S_{PP})~~ to obtain an improved uncertainty region which is more limited than one half nominal chip period ~~($T_C/2$)~~.

11. (currently amended) A computer readable carrier medium, having a program code recorded thereon, wherein the program code includes sets of instructions comprising:

first computer instructions for receiving a direct sequence spread spectrum signal ~~(S_{MT})~~ from the transmitter ~~(MT)~~ in each of at least three physically separated sensors ~~(100a, 100b, 100c, 100d)~~ whose respective positions are known, the signal ~~(S_{MT})~~ representing a set of symbols,

second computer instructions for correlating, in each of the sensors ~~(100a, 100b, 100c, 100d)~~ a representation ~~(S_{BB}, $<S_{BB}>$)~~ of the received signal ~~(S_{MT})~~ with at least one local spreading sequence ~~(S_{PP}, S_{bin})~~ to determine a respective estimated transmission delay ~~(d)~~ of the received signal ~~(S_{MT})~~, the received direct sequence spread spectrum signal ~~(S_{MT})~~ having a nominal chip period ~~(T_C)~~, the correlating step producing a chip level synchronization at least within an uncertainty region of one half nominal chip period ~~($T_C/2$)~~, and

third computer instructions for calculating a distance ~~($D_{MT\ 100}$)~~ between the signal transmitter ~~(MT)~~ and each of the at least three sensors ~~(100a, 100b, 100c, 100d)~~ based on the respective estimated transmission delays ~~(d)~~, wherein the correlating ~~step comprising the~~ further

~~sub-steps of:~~ comprises:

forth computer instructions for over-sampling the representation ~~(S_{BB})~~ of the received signal ~~(S_{MT})~~ within the uncertainty region to obtain a corresponding over-sampled representation of the received signal ~~($<S_{BB}>$)~~, the over-sampling being equivalent to a reduced chip period ~~(T_{C1})~~ which is shorter than the nominal chip period ~~(T_C)~~,

fifth computer instructions for selecting a local spreading sequence ~~(S_{PP})~~ containing poly-phased symbol values which are different from the set of symbols represented by the received signal ~~(S_{MT})~~, the selected local spreading sequence ~~(S_{PP})~~ having a nominal chip period being equivalent to the reduced chip period ~~(T_{C1})~~, and

sixth computer instructions for cross-correlating the over-sampled representation ~~($<S_{BB}>$)~~ of the received signal ~~(S_{MT})~~ with the selected local spreading sequence ~~(S_{PP})~~ to obtain an improved uncertainty region which is more limited than one half nominal chip period ~~($T_C/2$)~~.

12. (currently amended) A sensor ~~(100)~~ for determining a distance ~~($D_{MT\text{-}100}$)~~ to a signal transmitter ~~(MT)~~ based on a direct sequence spread spectrum signal ~~(S_{MT})~~ received from the transmitter ~~(MT)~~, the signal ~~(S_{MT})~~ representing a set of symbols, the sensor ~~(100)~~ comprising:

a timing unit ~~(220)~~ adapted to determine an estimated transmission delay ~~(d)~~ of the received signal ~~(S_{MT})~~ based on a correlation between at least one representation ~~(S_{BB}, $<S_{BB}>$)~~ of the received signal ~~(S_{MT})~~ and at least one local spreading sequence ~~(S_{PP}, S_{bin})~~, the received direct sequence spread spectrum signal ~~(S_{MT})~~ having a nominal chip period ~~(T_C)~~, the timing unit ~~(220)~~ being adapted to produce a chip level synchronization at least within an uncertainty region of one half nominal chip period ~~($T_C/2$)~~, and

a calculating circuit ~~(230)~~ adapted to calculate the distance ~~($D_{MT\text{-}100}$) on the basis of~~ based

__on__ the transmission delay ~~(d)~~ produced by said timing unit ~~(220)~~, wherein the timing unit ~~(220)~~ comprises:

a sampling circuit ~~(221)~~ adapted to over-sample the representation ~~(S_{BB})~~ of the received signal ~~(S_{MT})~~ within the uncertainty region to produce a corresponding over-sampled representation ~~(<S_{BB}>)~~ of the received signal ~~(S_{MT})~~, the over-sampling being equivalent to a reduced chip period ~~(T_{C1})~~ which is shorter than the nominal chip period ~~(T_C)~~,

at least one bank of spreading sequences ~~(223a)~~ adapted to provide a local spreading sequence ~~(S_{PP})~~ containing poly-phased symbol values which are different from the set of symbols represented by the signal ~~(S_{MT})~~, said local spreading sequence ~~(S_{PP})~~ having a nominal chip period which is equivalent to the reduced chip period ~~(T_{C1})~~, and

a correlating circuit ~~(222)~~ adapted to cross-correlate the over-sampled representation ~~(<S_{BB}>)~~ of the received signal ~~(S_{MT})~~ with said local spreading sequence ~~(S_{PP})~~ to obtain an improved uncertainty region being more limited than one half nominal chip period ~~($T_C/2$)~~.

13. (currently amended) __The sensor__ ~~A sensor (100)~~ according to claim 12, wherein the timing unit ~~(220)~~ is adapted to, before cross-correlating the over-sampled representation ~~(<S_{BB}>)~~ of the received signal ~~(S_{MT})~~ with said local spreading sequence ~~(S_{PP})~~, auto-correlate the representation ~~(S_{BB})~~ of the received signal ~~(S_{MT})~~ with a local copy ~~(S_{bin})~~ of the transmitted spreading sequence from the at least one bank of spreading sequences ~~(223b)~~ such that a chip level synchronization is obtained within an uncertainty region of one half nominal chip period ~~($T_C/2$)~~ around an auto-correlation peak.

14. (currently amended) __The sensor__ ~~A sensor (100)~~ according to claim 12, ~~wherein it~~

~~comprises~~ further comprising:

a control circuit ~~(240)~~ adapted to control the timing unit ~~(220)~~ such that for a particular representation ~~(S_{BB}, <S_{BB}>)~~ of the received signal ~~(S_{MT})~~ the at least one bank of spreading sequences ~~(223a, 223b)~~ provides an appropriate local spreading sequence ~~(S_{PP}; S_{bin})~~ to the correlating circuit ~~(222)~~.

15. (currently amended) A system for determining a position ~~(P_{xyz}(MT))~~ of a signal transmitter ~~(MT)~~ transmitting a direct sequence spread spectrum signal ~~(S_{MT})~~, the system comprising:

at least three physically separated sensors ~~(100a, 100b, 100c, 100d)~~, each sensor being adapted to receive the signal ~~(S_{MT})~~ transmitted from the signal transmitter ~~(MT)~~, the respective position of each sensor being known, and

a central node ~~(110)~~ adapted to receive distance data ~~(D_{MT-100})~~ from each of the sensors ~~(100a, 100b, 100c, 100d)~~, the distance data ~~(D_{MT-100})~~ representing a respective distance between the transmitter ~~(MT)~~ and the sensor ~~(100a, 100b, 100c, 100d)~~, wherein each of the sensors ~~(100a, 100b, 100c, 100d) is the sensor (100) according to claim 12~~ comprises:

a timing unit adapted to determine an estimated transmission delay of the received signal based on a correlation between at least one representation of the received signal and at least one local spreading sequence, the received direct sequence spread spectrum signal having a nominal chip period, the timing unit being adapted to produce a chip level synchronization at least within an uncertainty region of one half nominal chip period, and

a calculating circuit adapted to calculate the distance based on the transmission delay produced by said timing unit, wherein the timing unit comprises:

a sampling circuit adapted to over-sample the representation of the received signal within the uncertainty region to produce a corresponding over-sampled representation of the received signal, the over-sampling being equivalent to a reduced chip period which is shorter than the nominal chip period,

at least one bank of spreading sequences adapted to provide a local spreading sequence containing poly-phased symbol values which are different from the set of symbols represented by the signal, said local spreading sequence having a nominal chip period which is equivalent to the reduced chip period, and

a correlating circuit adapted to cross-correlate the over-sampled representation of the received signal with said local spreading sequence to obtain an improved uncertainty region being more limited than one half nominal chip period.